1 APRIL 1957

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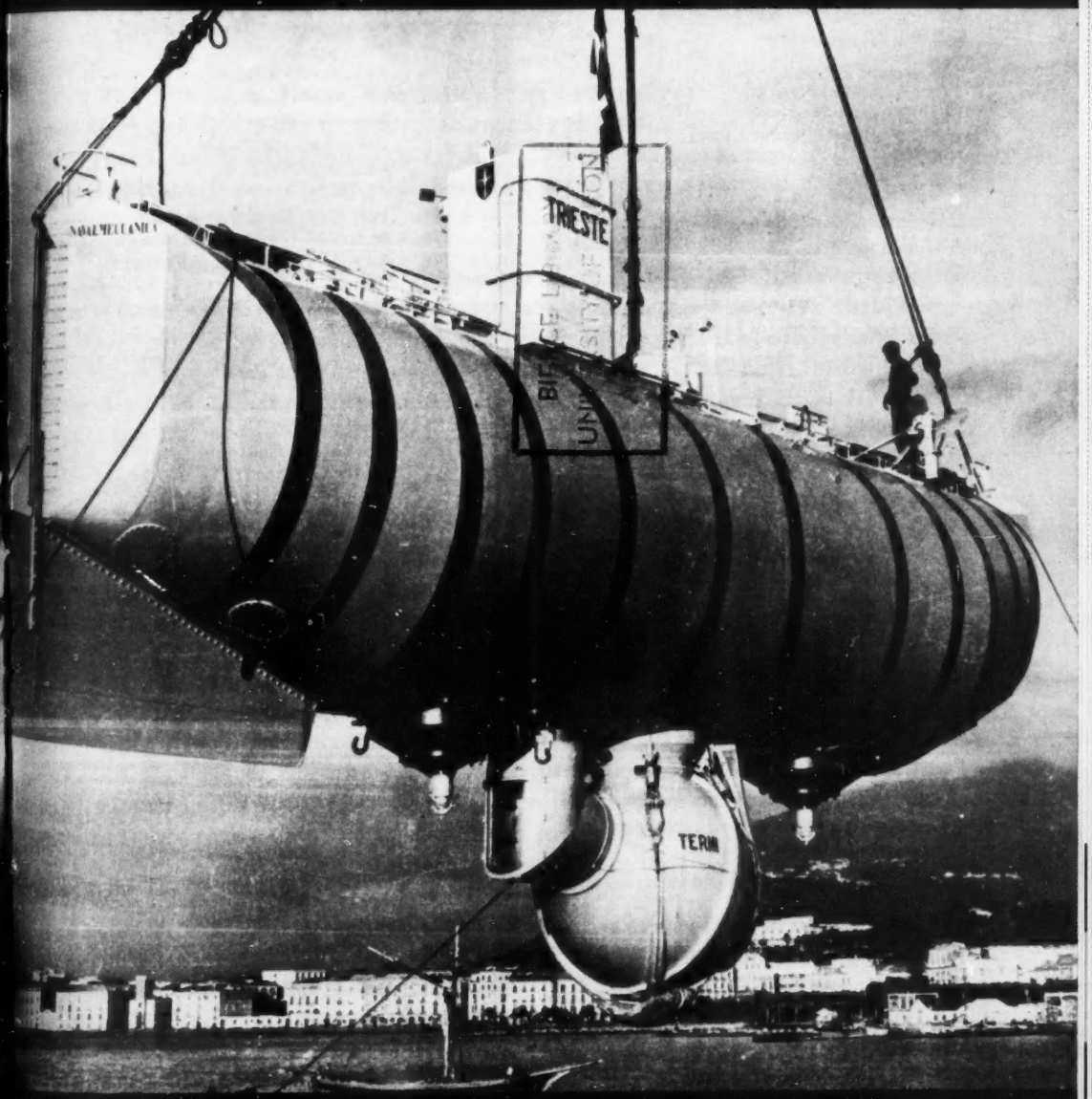
OVERNMENT RESEARCH AND DEVELOPMENT DIGEST VOL. 2, NO 4



In this issue . . .

FRENCH UNDERWATER RESEARCH FOR ONR

data

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DATA provides a rapid information link between industry and government. It is designed to give readers a quick scan of the latest developments in the military services and government agencies on a wide range of topics. Speeches and interviews of special significance are covered and reviewed by DATA.

Additional information on DATA articles when available will be furnished on request to subscribers. Unless otherwise notified within the article, send your request for further information to DATA, Box 6026, Arlington 6, Virginia.

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Contents

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FEATURE

166. ONR HOLDS FIRST SYMPOSIUM:

The Office of Naval Research marked ten years of accomplishment by holding its first symposium March 18 through 21.

Held in Washington in a spread of near-by government buildings, top scientists from all parts of the United States attended the sessions in which 80 technical papers were presented by experts in all fields of science.

Doctor George W. Hyatt, director of the Navy Medical Department Tissue Bank of cadaver procurement, discussed the progress Navy doctors have made in storing human materials for transplanting in emergencies. John T. Daily of the Navy's Bureau of Personnel showed how modern computer methods could be used to predict personnel first term reenlistment rates. Biological effects of radiation were revealed by E. L. Alpen of the Naval Radiological Defense Laboratory. Of special interest to propellant manufacturers and scientists interested in the new zip fuels were papers on that subject including a report by J. R. McNesby and A. S. Gordon on the reactions of free radicals in combustion. Of special interest to the electronics field was a paper by C. A. Potter on the tropospheric scattering of microwaves.

During a classified session on March 20th, papers were presented on the development of camouflage paints effective against infrared photography, underwater acoustic arrays for submarine detection, antenna miniaturization, submarine hull design, and there was even a classified paper on the use of ice and snow as building materials.

In total, the following fields were covered at the sessions: earth sciences, physics, chemistry, medical and psychological sciences, electronics and acoustics, mechanics and engineering, metallurgy and naval science.

DATA would like to join with all the many other well-wishers in congratulating ONR on a decade of outstanding achievement.

Abstracts of the Proceedings of the Symposium containing summaries of the 80 scientific papers have been published in a hard bound 61-page booklet. A very limited number of these abstracts of the ONR symposium are available through DATA to readers at $2.00 per copy. ///D/

1 April 1957

Dear DATA Readers:

There are still many problems that must be solved if space flight is to become a reality. Before we can contemplate sending a man into space, we must learn much more than we now know about our upper atmosphere, possible hazards of meteors and cosmic radiation, the problems of control and re-entry, and the problems of human survival in the unique environment of interplanetary space. When finally a man does make the attempt, conditions must be such that he can return.

Yet these problems, though formidable, are not insuperable, and man is definitely on the road to space. I believe every man in industry and government, especially on the executive level, should understand how this new development will affect him.

In industry, the requirements of space flight will mean new materials with extraordinary properties and new devices with unprecedented capabilities. Metals are a case in point: many of the metals now used in atmospheric craft will not suffice for space vehicles. The metallurgist must contrieve new alloys and processes to provide us with structural members and coverings that won't creep, fatigue, or otherwise lose their integrity under conditions of high acceleration, extremes of temperature such as will be encountered in atmospheric re-entry, micrometeor bombardment, and so on. Or take the electronics industry: they must develop many complex new kinds of equipment that will perform intricate functions without failure in the presence of still undetermined radiation levels, temperatures, vibrations, accelerations and magnetic fields. And one need hardly mention the job that lies in store for the chemists: the new fuels and oxidizers which must be developed before space flight can become practical will tax the resourcefulness and ingenuity of this industry to the utmost. I could go on -- aeronautical and propulsion engineering, systems analysis, human engineering, mechanical engineering, theoretical physics, mathematics, astrophysics -- the list of professions and disciplihes which must rise to the challenge of space is long, and still growing.

How close are we to manned space flight ? That is a question many people ask me. It probably will happen during our lifetime.

Can we say that sometime in the '70's or '80's someone will land a manned space vehicle on Mars or some other extraterrestrial body? The answer depends on how badly we want to, how much we are willing to spend -- both of dollars and effort, and how high the stakes are, sci-

entifically and otherwise. Much depends on how soon we solve the problems we face today. The many-sided efforts of the coming International Geophysical Year (July 1957 - December 1958) should help to answer a number of our questions. The scientific satellites which Project Vanguard will launch during that period will, we hope, lend to a new level of understanding of the region above the earth's atmosphere.

Assuming these present obstacles to manned space flight can be overcome--and that is a sweeping assumption--where would we go, and why? Columbus went west for the spices of the Indies. It is a sure bet that we wouldn't go to a dead planet like the moon for culinary reasons, but we would certainly find a great deal there of scientific value.

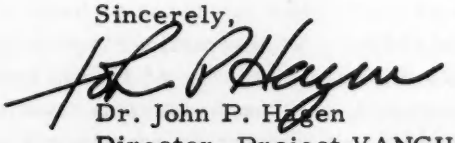
Mars is not much more difficult to reach than the moon, and there are indications that vegetation exists there, although oxygen and water are in short supply. The climate is colder than that of Earth, but the length of the day and the gravitational pull are roughly comparable. Mars would be a Mecca for scientists of all kinds, and might well have natural resources that man could exploit.

Venus is the only other world in our solar system where there is much likelihood of vegetation, but its cloud cover has proven impenetrable to our best telescopes. We have no idea what the surface is like. A landing on Venus, therefore, would be fraught with peril, but richly rewarding to the scientist.

Outside our solar system, however, there are innumerable stars similar to our sun. We have no reason to doubt that many of them have systems of planets, of which a certain fraction would be similar to the Earth. It is exciting to dream of exploring these worlds. The drawback , of course, is the immense distances involved. Our solar system is located near the rim of our galaxy--really out in the suburbs. Even if we could travel at the speed of light -- 186,000 miles per second -- it would take us 25,000 years to reach the center of the great pinwheel, or 150,000 years to circumnavigate it. It would take four and a half years to reach the nearest star. And countless other galaxies within the range of our telescopes stretch heaven knows how far beyond.

Yes, space and its problems are vast. But this is our heritage. It is now the task of hardheaded scientists and industrialists to make todays dream tomorrows reality.

Sincerely,



Dr. John P. Hagen
Director, Project VANGUARD
U. S. Naval Research Laboratory

Item 167.

168. PHILADELPHIA SYMPOSIUM:

During the week of March 11, a multitude of fine papers were presented at the 1957 Nuclear Congress held in Philadelphia. In making the summaries below, DATA has chosen two papers presented at the atomic energy symposium which we felt would be of most interest to our readers.

THE LATEST PROSPECTS FOR ECONOMIC NUCLEAR POWER

Roddis and Davis, Atomic Energy Commission, 14 March 1957

The years 1960 to 1964 will bring what we consider to be the first generation of true nuclear power plants. Plants which go into service during the years 1957 through 1959 belong to an experimental period.

Between 1965 and 1967 capital costs for atomic energy plants may be expected to approach the competitive level with conventional power. Following this period, further reduction of costs will take place so that by 1980 atomic power will cost six to seven mills per kilowatt-hour. A modern coal fired plant has about the same cost per kilowatt-hour now, but conventional fuel will go up in price as supplies get depleted, while atomic energy costs go down.

NUCLEAR ENGINEERING

W. K. Davis, Director of Reactor Development, 12 March 1957

Director of AEC reactor development and a chemical engineer, Davis went into great length to discuss the intricacies and special knowledge needed to equip an engineer in the field of atomic energy. This was the most valuable part of his talk. However, he pleads with his audience that it would be wrong to start a new field of nuclear engineering. All this material, Davis said, can be taught to present chemical engineers and in the regular education of other types of engineers.

"Engineering has already been proliferated and fragmented to an untenable degree," Davis says. Therefore, he repeats frequently the idea of imparting atomic knowledge to our present types of engineers without the need to create a new engineering field.

However, from the Davis talk, it seemed apparent that the tide is running the other way. Observing the detailed knowledge required and specialization needed, we must predict that some colleges will soon be graduating "nuclear engineers."

Of the exhibits at the nuclear symposium, DATA found that of the Atomics International division of North American Aviation to be one of the most interesting. The AI exhibit consisted of three reactor models, an organic moderated reactor, a sodium reactor experiment and a model of a Japanese industrial research reactor built by AI. ///DATA/

169. NAVY DECLASSIFIES A/C CONTAMINATION LIMITS:

A new Navy service manual, Handbook on Aircraft Maintenance and Cleaning, NAVAER 01-1A-506, will soon be made available to the interested public through the Government Printing Office. Distribution in the Fleet is just now being initiated.

What makes this book so interesting is the fact that the radiation limits necessary to ground aircraft and the best methods now known for decontamination of such aircraft are both revealed in unclassified text for the first time.

In the Tolerances for Final Clearance section of the manual, the book states that aircraft will be grounded due to contamination if maximum allowable beta-gamma intensity is 0.625 MREP/hour which is equivalent to 0.015 REP/24 hours.

Article 4-295. "An aircraft is considered to be contaminated and unsafe for final clearance when any of the following conditions exist:

a. Alpha radiation is detectable.

b. Beta-gamma radiation exceeds 0.625 mr/hr at one inch from the surface using an open window AN/PDR-27C instrument.

c. Two square inch wipes (of filter paper) over an area of 12 sq. inches reads more than 200 c/m using a properly calibrated AN/PDR-27C instrument."

The book was prepared by the NAS Alameda Maintenance Section and the Research and Development Section of the Bureau of Aeronautics Maintenance Division. BuAer tells us you should be able to get a copy of the 64-page manual from GPO about 1 May 1957. No price yet. ///D/

170. ROUND-UP OF AEC PERMITS, GRANTS AND AWARDS:

a. AEC issued 28 access permits during February bringing to 1225 the number of permits issued since the beginning, April 1955, of AEC's program for making Restricted Data of use in the peaceful applications available under AEC permits. Complete list of the permit holders and their addresses on request at no charge. ///AEC 1003 0314/

b. AEC issued 15 grants to universities totalling $1,193,450. The University of Puerto Rico at Rio Piedras received the largest grant, $216,950. The money will be used to train nuclear scientists and engineers. Complete list on request at no charge. ///AEC 992 0314/

c. AEC awarded 24 unclassified physical research contracts on March 7 to educational facilities in continental U. S. for research and atomic information studies. Four are new contracts and the remainder are renewals of contracts which have been in force. List. ///AEC 993-7/

AVIATION

171. AIR FORCE ESTIMATES FUEL REQUIREMENTS:

	1957	1958	1959	1960
AVGAS	1350	1400	1400	1350
JP-4	3000	3800	4500	5000
JP-6	0.5	3	4	5
RP-1	1	5	10	11
RJ-1	0.5	3	5	6

Quantities are in millions of gallons; years are fiscal.

AVGAS is for subsonic piston-engined aircraft. Quantities will decrease as jet trainers and transports come into operation and older piston-powered aircraft are retired.

JP-4 is primarily for turbojet and turboprop engines in subsonic and low supersonic land-based weapon systems. Needs will continue.

JP-6 is for turbojet engines in supersonic land-based weapon systems. Quantities needed will increase with more supersonic aircraft.

RP-1 is a specific rocket engine fuel in a ballistic missile. It may be used in other engines on other missiles.

RJ-1 is a ramjet fuel now used in the engine of a guided missile. Small quantities are needed now. It is expected that large quantities will be needed during engine development but then later stabilize as the missiles become operational. ///AIA and AF Info/

172. CONVAIR B-58, the aircraft designed to carry a special weapon pod, became the pod of a B-36 so it could be airlifted from the Convair plant at Fort Worth to WADC Dayton for airframe tests. It was cheaper to airlift frame than to fly it and ship back engines. ///AF/

173. THE F-105 THUNDERCHIEF by Republic, is shown below in the first released view of the aircraft. Photo distributed to newsmen was retouched on tail indicating change in area of vertical fin. Aircraft is presently undergoing tests at the Republic plant in N. Y. ///AF/

174. "ZIP" FUELS HOLD ANSWERS AND PROBLEMS:

The Navy has begun construction of a new $38-million high-energy fuel plant at Muskogee, Okla. to provide it with new zip-type fuel to power jet aircraft and missiles to new levels of high performance. The details of the new "exotic" fuels are classified, but it is known that during the process of combustion free radicals are formed which are oxidized in the union forming other chemical compounds to provide very powerful forces in combustion. This is good. But some of the problems of handling the new zip fuels are not so good. Admiral Arleigh Burke, CNO, revealed at the American Institute of Chemical Engineers meeting in Boston that the high toxicity, or poisonous effects, of these fuels had prevented use aboard ship. ///Pentagon OPI 0308/

175. ARMY AND NAVY GET WEATHER DATA WITH MISSILES:

The LOKI, originally developed as a defense against high-level bomb raids, has been re-tagged the HASP and has been converted to a weather observer by scientists at the Naval Ordnance Laboratory. In 80 seconds the HASP tops 100,000 feet and releases weather instruments that float back to earth by balloon. Army scientists, using AEROBEE rockets are mapping North Wind currents by a similar method. The AEROBEE rockets release explosives for sound bearings. ///AN 11-21/

176. HR2S-1W RADAR 'COPTER extends Navy's air-early-warning coverage beyond that of shipboard search radar. This twin-engined Sikorsky machine has retractable landing gear. Fuselage section is built around the General Electric AN/APS-20 radar. ///NA NEWS/

177. GRUMMAN WF-2 air early warning aircraft is a modification of TF-1 TRADER. Large housing atop fuselage carries latest type radar search gear. Housing is of aluminum on prototype but will be of fiberglass honeycomb sandwich on production aircraft. ///Navy/

VASCOLOY-RAMET PRESENTS . . .

VR

NEW VR-75 quality carbide is a vacuum sintered steel-cutting grade developed specifically for use where high heat is generated. On such work, it will out-perform any grade of carbide available today

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In throw-away and long inserts for negative rake toolholders

VR-75 is an addition to the standard line of V-R quality steel-cutting carbides which meet 80% to 90% of all steel machining requirements. On applications where severe heat and shock conditions are a problem, new VR-75 is the thoroughly field-proven answer. It is ideally suited to heavy turning, facing, boring and milling jobs where coolants are not used . . . and will also give excellent results on a great many general steel machining operations.

VR-75 gains its exceptional heat resistance, high edge strength and high shock resistance from the special blending of tungsten carbide, titanium carbide, tantalum carbide, columbium carbide and cobalt. Maximum performance is assured by its grain structure and exceptional purity. Vascoloy-Ramet's exacting quality control procedures assure a constant, superior, uniform product.

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Get complete facts about this cost-cutting carbide today.

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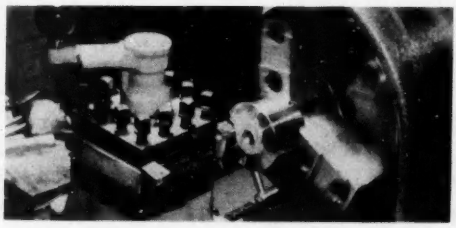
A SUPER STEEL-CUTTING CARBIDE GRADE

NEW VR-75 HAS

- High heat resistance
- High shock resistance
- High edge strength

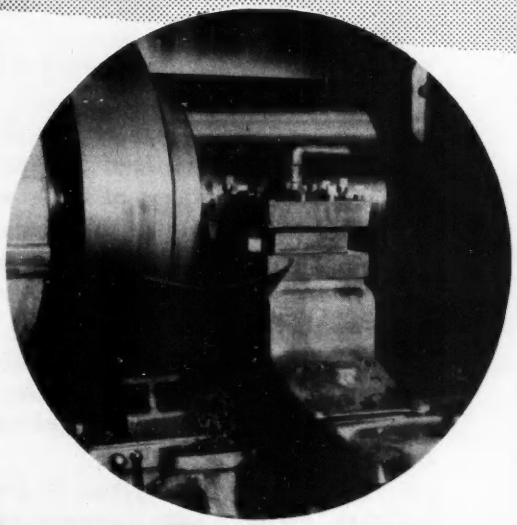


VR-75 Has Set Performance Records on Jobs from 1" to 36" Diameter

New VR-75 will increase production . . . minimize downtime . . . and drastically reduce tool costs on rough jobs like these:

- Wheel turning
- Roll turning
- High speed milling
- Crankshaft cheeking

. . . and many others.



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MANUFACTURERS OF: CEMENTED CARBIDES, TOOLHOLDERS and TANTUNG® CAST ALLOY CUTTING TOOLS

178. SOIL SOLIDIFIER SOUGHT BY SERVICES:

The National Inventors Council is hoping some chemist or independent inventor will come up with a cheap, easy to mix soil additive to turn surface soil into hard road surface. The Defense Department has stated an urgent need for such a material for hardening access roads, bridge approaches and missile launching sites. The soil additive must meet the test of being applicable to wet or dry soil without using cumbersome equipment. ///Department of Commerce/

179. NATIONAL INSTITUTE OF HEALTH OFFICE BUILDING:

General Services Administration has announced that the GSA Public Buildings Service has entered into a contract for architectural and engineering services necessary to construct an office building for the Clinical Center of the National Institutes of Health at Bethesda, Md.

The architectural firms of Keyes and Lethbridge of Washington, D. C., and Richard Collins and associates of Silver Spring, Md., will furnish these services as a joint venture.

Overall cost of the project is estimated at $5,300,000. It will be a multi-storied, air conditioned building with approximately 216,000 sq. feet of gross florr area. Architects estimate that working drawings and specifications will be completed in about six months. ///GSA 0320/

180. CONTRACTING FOR CAPEHART HOUSING RESUMED:

A temporary order suspending contracting for Capehart military fmily housing was lifted on April 1, 1957. The suspension order, signed by Deputy Secretary of Defense Reuben B. Robertson on Feb. 28, was designed to slow down the present rate of contracting, pending a determination of priorities for projects not yet under contract.

The slow down was ordered in view of the difficulty in attracting long-range private investment capital in the present mortgage market. Mortgages on Capehart projects bear a four percent interest rate and have attracted few purchasers. As a result, construction of Capehart projects has depended largely upon advance commitment of Federal funds.

The present ceiling on funds available for this purpose is $200 million, which at the current rate of commitment would have been exhausted by the end of March 1957. DOD has requested an increase of $100 million in these funds. ///Pentagon OPI 0318/

181. TWO NEW RECEIVERS APPROVED FOR NAVY USE:

OPNAV Instruction 9671.2 lists two new receivers available to the Fleet for standard use.

The R-389(XC-1)/URR receiver is a 35-tube double conversion superhetrodyne receiver with a frequency range of 15-1500 KC. The new receiver covers seven operating bands. Sensitivity is less than 10 microvolts for AM reception and less than 3 microvolts for CW reception throughout the frequency range.

The R-390(XC-1)/URR is a 33-tube multiple conversion superhetrodyne receiver covering the frequency range from 500 to 32000 KC. It uses triple conversion from 500 to 8000 KC and double conversion from 8000 to 32000 KC. Sensitivity is the same as R-389.

Both new receivers have self-contained power supplies. Also, both have single sideband adaptors.

Evaluation of the R-390A is now underway. ///Nav Com Bulletin/

182. BIG COMMUNICATIONS NET SCHEDULED FOR "KING COLE":

One of the largest communications networks ever assembled for a stateside problem will be used in Operation King Cole. King Cole, a command post field exercise, is scheduled to run from March 27 until April 15 at Ft. Polk, La. About 23,000 troops from more than 30 posts will take part.

The exercise, which will test Army operations under conditions that might exist in atomic and electronic warfare, will employ a vast communications set-up. More than 7500 electronics specialists have been at work on the project since January. The communications system includes a closed television circuit. ///Army SigCorps 0319/

183. '56 BIBLIOGRAPHY OF ELECTRONIC STUDIES AVAILABLE:

Electronic research reports released by the Air Force, Army and Navy through the Commerce Department have been tabulated and placed in a bibliography by that activity. The reports themselves may be purchased in printed form from Commerce or viewed at the Library of Congress on microfilm or photocopy.

Copies of the complete bibliography are available. Those desiring the 50-page tabulation should ask for PB 121779, Government Electronics Research, January-December 1956. Price $1.50. Send to Office of Technical Services, Commerce Department, Washington 25, D. C. ///Com/

184. ARDC HAS OUIJA BOARD SYSTEM:

Since development of new items is routine for the Air Research and Development Command, it was probably inevitable that someone in ARDC would come up with a new system of assigning stock numbers to the new items. Such a system has been developed at the base supply section of ARDC's Air Force Missile Test Center, Patrick AFB, Fla. A new chart, anonymously named a "Ouija board" has proven to be a more efficient and accurate method than was possible before.

Unimpressive in appearance, the Ouija board is simply a checkerboard-sized card with hundreds of squares filled with numbers and letters and a sliding rule, also numbered and lettered. But for all its modest appearance, it performs mathematically in a matter of seconds a service that saves many man hours in assigning new stock numbers in proper sequence. Numbers determined by the board are placed on cards and filed. The device will be used in Air Force installations in the U. S. and abroad. More information on request. No charge. ///ARDC 0318 89/

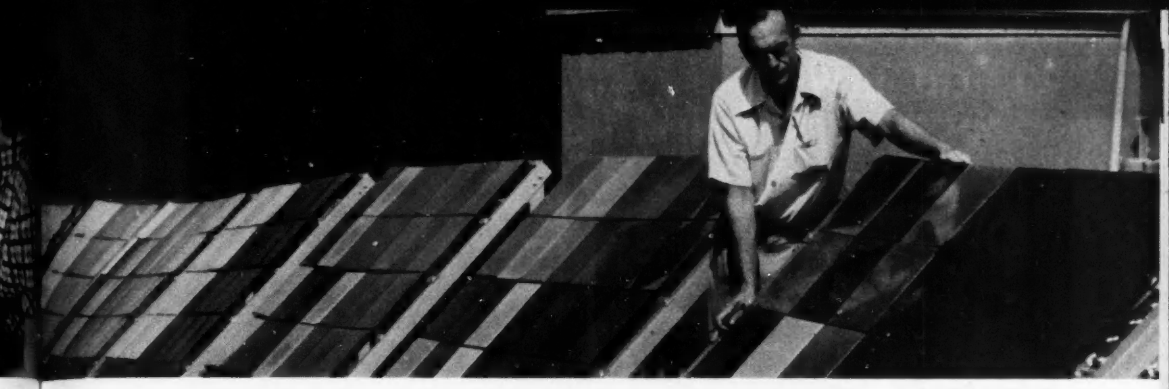
185. BRAINSTORMING CONSIDERED APPLICABLE TO NAVY:

The technique of brainstorming has been explored by the Navy Office of Industrial Relations which calls the procedure a "powerful tool," but at the same time cautions that brainstorming is no overall panacea. Special OIR courses on group creative thinking (as the Navy labels it) were held for military and civilian personnel. Purpose of brainstorming is to increase flow of ideas on any problem or subject. The Navy points out brainstorming is no substitute for the conference; rather it serves as a supplement.

The idea of a brainstorming session is to get the views of various people on a given problem even though the individual suggesting a solution might be only vaguely connected with the subject for discussion.

Practice makes perfect and it holds good in brainstorming. Early sessions may not produce real results. But as participants gain "skill" the percentage and quality of ideas rolled up in a 30-minute session become impressive.

A course instructor from industry told the Navy that in any test of power against a potential enemy, "...the winning difference may well lie in the ability to have more and better ideas to improve research, management, production and training." ///Naval Training Bulletin/



186. PORCELAIN ENAMELS WEATHER 15-YEAR EXPOSURE TEST:

Increasingly you find porcelain enameled steel being used as an exterior finish for buildings, not to mention advertising and street signs. The material owes its architectural popularity to good weather resistance, economy of construction, ease of cleaning, availability in a variety of colors and a pleasing appearance. Now, the National Bureau of Standards has come up with its recently completed 15-year test on the outdoor weathering effects on porcelain enameled steel. Results show large variations in weather resistance among the 864 panels tested at exposure sites in St. Louis, Mo., Lakeland, Fla., Atlantic City, N. J. and Washington, D. C.

Enamels affected least were those having high resistance to acid attack. The most resistant enamels retained over 90 percent of their initial gloss and showed insignificant color changes for the 15-year period. Results should prove helpful to enamel manufacturers, architects and engineers.

Copies of the report are available through DATA. $1.00.

///NBS 2088/

187. ARMY TO SPONSOR PACKAGING AND MATERIALS SYMPOSIUM:

The Army, in cooperation with all military services, Department of Commerce, and the National Security Industrial Association, will sponsor the Third Joint Military-Industry Packaging and Materials Handling Symposium on October 1, 2, and 3 at Fort Lee, Virginia, home of the U. S. Army Quartermaster Corps.

Theme of the symposium will be "Packaging and Materials Handling in Action." The symposium will relate packaging and materials handling to conditions in the field and will familiarize defense and industrial personnel with new developments in these criterial areas of mutual interest. Firms and individuals desiring further information have been asked to get in touch with the Procurement Division, Deputy Chief of Staff for Logistics, Department of the Army, Washington 25, D. C.

///Pentagon OPI 0319/

188. MEDICAL UNITS TO BE ACTIVATED BY AF RESERVE:

Activation of ten widely dispersed medical units has been announced by Air Force Reserve headquarters at Mitchel AFB, N. Y. The following are cities in which new units will be activated: Long Beach and San Francisco, Calif.; New York, N. Y.; New Orleans, La.; Chicago, Ill.; Ft. Worth, Texas; Boston, Mass.; Tampa, Fla.; Baltimore, Md.; and Indianapolis, Ind.

The new medical units will be manned by Air Reservists not on active duty from Center location areas. Facilities will provide an extra 6000 beds for Air Force patients. ///Mitchel AFB PIO/

189. SERVICE FAMILIES URGED TO GET SALK POLIO SHOTS:

The Defense Department, cooperating in a nation-wide campaign to wipe out polio through inoculations, early this year made Salk vaccine available to all members of the Armed Forces and their dependents on a voluntary basis.

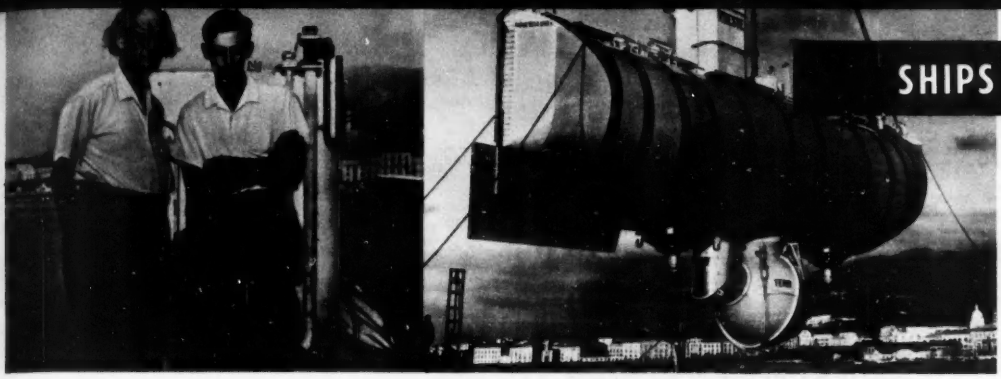
Dr. Frank Berry, Assistant Secretary of Defense (health and medical), urged servicemen and their dependents, particularly in families with small children, to take the series as a safeguard. //AF Press 17/

190. NAVY NEEDS $12.2 MILLION MORE FOR MEDICAL CARE:

In a supplemental appropriation request for fiscal 1957 sent to Congress, the Navy asked for an additional $12,200,000 to spend on medical care for dependents during the year ending June 30. The Navy would get the money by taking a cut of corresponding value from its appropriation for construction of ships, according to the proposal. ///BuMed/

191. FIBER TO SEW UP WOUNDS SOUGHT:

Researchers are striving to find a protein fiber, which will be absorbed by the body--but not for at least a month--to use for sewing the tissue in wounds together. Presently, cat gut and plastic sutures have been tried but have not proven successful. Dr. Raymond W. Postlethwait, professor of surgery at Duke University School of Medicine, has been pushing the search for an absorbable suture with high interest being generated from both civilian and military medical heads. ///DATA/



192. THE BATHYSCAPE TRIESTE, a submersible research craft, was designed by Professor Auguste Piccard and his son, Jacques. The craft will make a series of dives in the Mediterranean area this summer under contract with the Office of Naval Research. ///ONR 670255-6/

193. ONLY NUCLEAR SUBS NOW FOR U. S. FLEET:

The United States will build no more conventionally powered submarines. The Navy has requested only nuclear powerplants in proposals covering undersea vessels to be constructed under new budget plans. Estimates that the atomic submarine would cost twice as much as the conventional undersea boats have been reduced, and the new submarines are expected to cost only 40 percent more than the older craft. It was also announced that the 85,000-ton atomic-powered aircraft carrier now under construction will cost 40 percent more than the 60,000-ton USS FORRESTAL which cost a little over $200 million. ///Military Review/

194. JAPAN PLANS NUCLEAR POWERED UNDERSEA TANKER:

Hull construction tests have been completed in preparation for the building of the Japanese submarine tanker. The projected tanker will be about 10 times as heavy as the NAUTILUS and will have a cargo-carrying capacity of 30,000 tons. It will be 540 feet long and 69 feet wide. It is expected to cruise at a speed of 22 knots submerged. The big vessel will be nuclear powered and have snorkel air intake and exhaust. ///DATA/

195. ATOMIC ICEBREAKER FOR USSR:

The first Soviet ship to be powered by nuclear energy is nearly completed. It will be an icebreaker and will be powered by a boiling water type nuclear reactor with a thermal power of 200,000 kilowatts. With 40,000-horsepower capacity it will cruise at 22 knots. ///DATA/

196. MORE HIGHWAYS FOR USE IN '57:

The Federal Highway Administrator, Bertram D. Tallamy, has said that the 13-year U. S. road expansion program is on schedule and that the average motorist will be able to notice results this year.

"We'll be driving on some new portions of the Interstate System by the end of this year -- in some of the states in the midwest," Tallamy stated, "By the end of next year there should be substantial milage. Then by the end of the following year we should have a definite savings in travel time all over the country. From that point on, practically everyone will realize the full value of the controlled-access highway principle and the Interstate Program because people all over the United States will learn by actual experience how great these improvements are. Faster travel will give people more time at home." ///Interview - National Highway Users Conference 03/

197. CONTRACTS AWARDED FOR PRODUCTION OF VEHICLES:

Contracts totalling $3,227,986 have been awarded to Ford Motor Company, General Motors and International Harvester for production of commercial-type military vehicles for the Armed Forces. Chevrolet Division of GM received $1,331,038 for production of half-ton trucks, $1,054,733 for production of 29-passenger USAF busses and $223,504 for two and two-and-a-half ton trucks. A $60,788 contract was awarded to International Harvester for two-, two-and-a-half and three-ton trucks and Ford received $501,812 for two ton trucks. ///Pentagon OPI 0313/

198. BRIDGES BY AIR is the newest transportation trick of the R&D Engineering Laboratory at Fort Belvoir, Va. Carrying the sections by air is expected to replace the present time and labor consuming methods of moving river crossing equipment by trucks and trailers. The helicopter in the photo at right is Sikorsky's twin-engine H-37 shown carrying a 5600-pound pontoon bridge float in test demonstrations. Other 'copters including the Vertol H-21C with a lifting capacity of 3400 pounds have also been used in the new method of bridge construction. ///Ft. Belvoir 494258/

199. COPIES OF WILSON DIRECTIVE ON R&D RESPONSIBILITIES:

We have a very limited number of copies of the Department of Defense directive which sets forth the responsibilities of the new Assistant Secretary of Defense for Research and Engineering. Copies of the new DOD Directive 5129.1 of March 18, 1957, are being made available to DATA subscribers on request at no charge. ///DATA/

200. COMPLETE LIST OF ALL STATE-SIDE USAF FACILITIES:

DATA has available an up-to-date list of all USAF facilities in the U. S. as of March 25, 1957. The eight-page recently declassified listing tallies 191 Air Force facilities from finance centers to missile test bases in alphabetical order. The complete list is available to our readers at a cost of $1.00. Limited. ///DATA/

201. BRAZIL TAKES DELIVERY OF FIRST LAT-AM CARRIER:

The 19,000-ton aircraft carrier, VENGENANCE, has been purchased by Brazil from Great Britain and renamed the MINAS GERAIS. It is 695 feet long and 80 feet wide; has a 690-foot flight deck; is armed with nine 40-mm and 24 two-pounder antiaircraft guns; and can carry 35 aircraft. It has a top speed of 25 knots and a complement of 1300 men. It is the first aircraft carrier in any Latin American navy. Brazil also now has five submarines. ///Military Review 03-68/

202. U. S. NOW HAS 170 MILLION POPULATION:

The "census clock" in the Commerce Department has ticked off the arrival of the 170 millionth U. S. citizen. The device operates continuously and keeps figures up to the minute with three vital statistics: a birth every 8 seconds, death every 21; an immigrant every 2 minutes, an emigrant every 24 minutes. Net gain: one person every 12 seconds. ///Commerce/

203. BOOK ON DEPARTMENT OF DEFENSE:

On request at no charge, a small pamphlet with block diagrams of DOD position and duties in U. S. government. ///DATA/

MSA

MINE SAFETY APPLIANCES COMPANY

201 NORTH BRADDOCK AVENUE

PHONE CHURCHILL 1-5900 **PITTSBURGH 8, PA.** CABLE "MINSAF" PITTSBURGH H-67

99 Dupont Circle Building
Connecticut Avenue, N. W.
Washington 6, D. C.

March 18, 1957

THE FOREIGN SERVICE
OF THE
UNITED STATES OF AMERICA

U.S. INFORMATION SERVICE

Laugavag 13,
Reykjavik, Iceland,
February 15, 1957.

Mr. Murray Smith, Editor,
DATA,
Box 6026,
Arlington, Virginia.

Dear Murray:

Congratulations on the successful launching. DATA seems to have provided a career for you—thanks to your persistence. You probably already know that it is being forwarded to all United States Information Service posts throughout the world, but I'll take this occasion to offer a testimonial from Iceland. We redistribute it to interested offices in Reykjavik and the reception so far has been good.

I took over as Cultural Affairs Officer here last June and am enjoying the work immensely. Added joy ... family last August, have a fine place t... is cheap.

ADDRESS REPLY TO ...

- Special Information Edition, dated 15 March
ersonal check in the amount of Six Dollars
complete list of military publications in
in, Australia, etc., as set down in Para-
ation.

twenty-six page illustrated brochure being
n concerning the Pentagon - Paragraph 160.
wo copies of this.

incerely yours,

NE SAFETY APPLIANCES COMPANY

KENNAMETAL Inc.
GENERAL OFFICE AND MAIN PLANT
LATROBE, PA., U. S. A.
CEMENTED CARBIDE PRODUCTS

KENNAMETAL

TE

March 12, 1957

"Data"
Box 6026
Arlington 6, Virginia

Gentlemen:

Reference is made to your issue of March 1, 1957.

We would like to have a copy of General Shriever's speech and the NRL booklets. (Pp. 3-2 & 3-3)

Our company manufactures titanium carbide (trade name, Kentanium) for high temperature applications in missiles and rockets; and niobium for nuclear reactors. We are therefore very interested in both the publications mentioned.

Many thanks for your consideration of the above, and of course, for the literature if it is still available.

Very truly yours,

KENNAMETAL INC.

Joseph L. Kane (2)
Joseph L. Kane
Rear Admiral, U.S.N. (Ret'd)
Vice President

JLK:djd

DEPARTMENT OF NATIONAL DEFENCE
CANADA

CANADIAN JOINT STAFF
2450 MASSACHUSETTS AVE., N.W.
WASHINGTON 8, D.C.

IN REPLY R...

Dear Sir:

21 March, 1957

I note from your 15th March Data Gram that a brochure of the Pentagon is available to subscribers.

It is requested that I may be supplied with one copy. This request is under the subscription in the name of the Canadian Joint Staff (Naval Member), 2450 Massachusetts Avenue.

Yours sincerely,

(E. S. Smith)
COMMANDER (E) RCN

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...orwarding you this information for what it is worth, it may help to the Air Force in solving this problem.

Yours very truly,

CHARLOTTE ENGINEERS, ...

R. L. Chism

data gram

Additional information to supplement DATA Magazine between issues. 15 April 1957.

SPECIAL INFORMATION EDITION
Published by DATA, Murray Smith, Editor
Box 6026, Arlington 6, Va. Phone Otis 4-8129

204. ANTI-MISSILE MISSILES have been the real news in the Pentagon inner circle these past few days. A project referred to as "ANTI" has received the most comment. In one E-ring office from one very high leader in missile development, we received the following but-don't-quote-me comment, "If an ICBM attack should come to the U. S., we will be ready...all is not lost."

No additional information. ///DATA/

205. FIRST TITANIUM STATUS REPORT on the Department of Defense titanium sheet rolling program has been released. The report covers the first six months of a joint Army-Navy-Air Force program, coordinated by the Navy under the auspices of the DOD Steering Group on Titanium Research and Development.

Highlights of the report include:

1. Highest target properties established in the program call for heat-treated alloys with room-temperature ultimate tensile strengths of up to 180,000 psi and tensile yield strengths of 160,000 psi.

2. Temperature goals are limited to 800 degrees (F) with short-time tensile strengths of 130,000 psi at that temperature.

3. Commercial size ingots are now melted to form sheet stock.

4. Progress has been made on the problem of adequate uniformity of sheet titanium alloys.

More information on request. $1. ///Pentagon OPI/

206. SELLING TO THE NAVY, a concise to-the-point outline, is available at no cost from DATA. The four-page mimeographed report tells who is eligible, who to contact and things to remember when selling your product direct to the Navy or to Navy Prime Contractors.

Free on request. ///Navy Info/

207. NEW PENTAGON SHORT-WAVE RADIO with a very powerful transmitter will soon be installed. The big set will be about 50 times more powerful than the loudest commercial broadcasting station.

The "World Spanner" as Army SigCorps technicians call it, will be a single sideband design and transmit with a power of 300,000 watts.

World Spanner can transmit at any frequency in the short wave spectrum from 4 to 30 megacycles, and a second version will cover the range from 20 to 65 megacycles. Prime contractor was Continental Electronics of Dallas. RCA built the 18,000-volt 150-pound vacuum tube.

The new SSB transmitter is designed to fill a need in the Army's world-wide communication network.

Press release of 4-12-57 free on request. ///Pentagon OPI 0412/

208. AMERICAN ROCKET SOCIETY registrants attending the spring meeting held at the Sheraton Park Hotel in Washington April 3-6 spent time in the following sessions: 1. Space Sociology, 2. High Speed Sleds, 3. Propulsive Systems, 4. Human Factors and 5. Astronautics (Gen.).

A very limited number of ARS reprints of the complete text - no abstracts - of the papers presented at the ARS symposium are available to DATA readers. Cost: $1.00 for each paper desired.

DATA cannot be responsible for stocking these reports. If we run out we will refund your money. Or write first and we will bill if available.

While supplies last, DATA has available one or two copies of the following papers presented at the symposium:

388 - Some Current Considerations Affecting Space Law: R. Roy, ICAO.
390 - Psychological Tolerance for Weightlessness: Gerathewohl, AvMed.
393 - Design of Two Large Liquid Rocket Sleds: Davies & Smith, Reactio
392 - Supersonic Track at Naval Ord: Egbert & Ankeney, China Lake.
397 - Space Law and Metalaw Defined: Andrew Haley, ARS Counsel.
396 - Aberdeen Ballistic Track: M. E. Bonnett, Aberdeen Proving Gnd.
399 - Astronautics, Public Relations and the Press: Bergaust, AmAv.
401 - Function of Universities in Astronautics: Singer, U of Md.
402 - Supersonic Rain Erosion of Missile Radomes: Barr, Edwards AFB
405 - Track Testing at Air Force Armament Center: Hendricks, Eglin.
406 - Measurement of Rocket Sled Velocity: Beutler and Rauch, Mich. U.
407 - The Holloman Track: G. R. Eber, Holloman AFB.
408 - High Speed Sled Test Vehicles: R. A. Hirsch, Aircraft Arm., Inc.
409 - Closed Circuit High-Speed Test Track: Barten, Eglin AFB.
410 - Track Testing at the AF Center: Seger, AFFTC, Edwards AFB.
411 - Sled Testing Emergency Escape Systems: Hegenwald, North Am. A
412 - The Development of RESCU Mark I: Mohrlock, Convair.
415 - Liquid Rockets for Supersonic Sleds: Roth & Poland, Aerojet.
416 - Vibration Environment in Liquid-Propellant Sleds: Barr, Ramo.
417 - Stability of Liquid Propellants: Bartz, Calif. Inst. of Tech.
418 - Rocket Impulse Spectrum: Farber, Aerojet.
419 - Project Snooper (Ion Propelled Vehicles): Willinski, Rocketdyne.
420 - Mission and Propulsion System Relationships: Carter, Carter Lab
421 - Ramjet Engine Speed Control: Nelson & Farrar, Bendix.
424 - Mechanical Aspects of Vanguard Flight Control: Sholes, Martin.
425 - Support Requirements for the Vanguard Vehicle: Williams, Martin
426 - U. S. Army and the IGY: Lt. Col. C. M. Parkin, Ft. Belvoir Eng.
427 - Design, Fabrication and Testing of Vanguard: Baumann, NRL.
428 - Re-Entry of Spherical Bodies into Atmosphere: Pence, Convair.
430 - Flare Measurements from Rockets: Friedman and Assoc., NRL.

///The American Rocket Society/

209. DATA WILL BEGIN A DAILY MAIL DOD RELEASE SERVICE if enough people are interested. We would appreciate your comments.

Would you like all releases daily? ///DATA/

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